

## A NEW SPECIES OF THE GENUS *SINOPHILAEOPA* (ORTHOPTERA, ACRIDIDAE) FROM YUNNAN, CHINA

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**Abstract** A new species of the genus *Sinophlaeoba* Niu et Zheng, 2005, *S. zhengi* sp. nov. is described from Yunnan, China. A key to the known species of the genus is provided. The type specimens are deposited in the College of Agriculture and Biology, Dali University, Yunnan, China.

**Key words** Orthoptera, Acrididae, *Sinophlaeoba*, new species, China.

The genus *Sinophlaeoba* was proposed as a monotypic genus by Niu et Zheng in 2005 with the type species *S. bannaensis*. It now includes 3 species: *S. bannaensis* Niu et Zheng, 2005, *S. laoyinshan* Mao, Ou et Ren, 2008, and *S. brachyptera* Mao, Ou et Ren, 2008. In this paper, one new species is described and illustrated from Yunnan, China. The specimens are deposited in the College of Agriculture and Biology, Dali University, Yunnan, China.

### *Sinophlaeoba* Niu et Zheng, 2005

*Sinophlaeoba* Niu et Zheng, 2005: 762; Mao, Ou et Ren, 2008: 34–35.

Type species: *Sinophlaeoba bannaensis* Niu et Zheng, 2005.

**Generic diagnosis.** Body small to medium, slender. Head nearly as long as pronotum. Fastigium of vertex distinctly prominent forwards. Face strongly oblique. Antennae ensiform. Pronotum with lateral carinae nearly parallel, with irregular and short carinae between median and lateral carinae; posterior margin obtusely rounded. Brachypterous, tegmina not surpassing beyond middle of postfemur, but touching each other in mid dorsal line. Postfemur with upper carina smooth. Knee lobes with apex rounded. Posttibiae without external apical spine. Tympanum developed. Male cerci conical. Ovipositor valves with outer margins smooth.

### Key to species of *Sinophlaeoba* Niu et Zheng, 2005.

1. Body brown green in male or yellowish brown in female, posttibia greenish blue in both sexes; male fastigium narrowly rounded ..... *S. bannaensis*  
Body yellowish brown in both sexes, posttibia brown in both sexes; male fastigium broadly rounded ..... 2
2. Tegmina shorter, only reaching posterior margin of third abdominal tergite or 1/4 of postfemur in male ..... *S. laoyinshan*  
Tegmina longer, at least surpassing posterior margin of fourth abdominal tergite or reaching 1/3 of postfemur in male ..... 3
3. Tegmina faintly surpassing posterior margin of fourth abdominal tergite or reaching 1/3 of postfemur in male, or reaching at middle of

third abdominal tergite in female ..... *S. zhengi* sp. nov.  
Tegmina almost reaching posterior margin of fifth abdominal tergite or 1/2 of postfemur in male, or reaching posterior margin of fourth abdominal tergite in female ..... *S. brachyptera*

### 1 *Sinophlaeoba bannaensis* Niu et Zheng, 2005

*Sinophlaeoba bannaensis* Niu et Zheng, 2005: 762–763; Mao, Ou et Ren, 2008: 39, 41.

**Materials examined.** 1 ♂, China, Yunnan, Mengla, Mt. Nangong (21°36'N, 101°25'E; alt. 1 000 m), 25 July 2004, collected by NIU Yao. 2 ♂♂, 1 ♀, China, Yunnan, Mengla, Mt. Nangong (21°36'N, 101°24'E; alt. 1 200 m), 20 Nov. 2007, collected by MAO Ben-Yong.

**Distribution.** China, Yunnan (Mengla).

### 2 *Sinophlaeoba laoyinshan* Mao, Ou et Ren, 2008

*Sinophlaeoba laoyinshan* Mao, Ou et Ren, 2008: 35–37.

**Material examined.** 1 ♂, China, Yunnan, Gejiu, Mt. Laoyin, alt. 1 560 m, 6 May 2005, collected by GUO Chang-Cui. Deposited in the Faculty of Conservation Biology, Southwest Forestry University.

**Distribution.** China, Yunnan (Gejiu).

### 3 *Sinophlaeoba zhengi* sp. nov. (Figs 1–11)

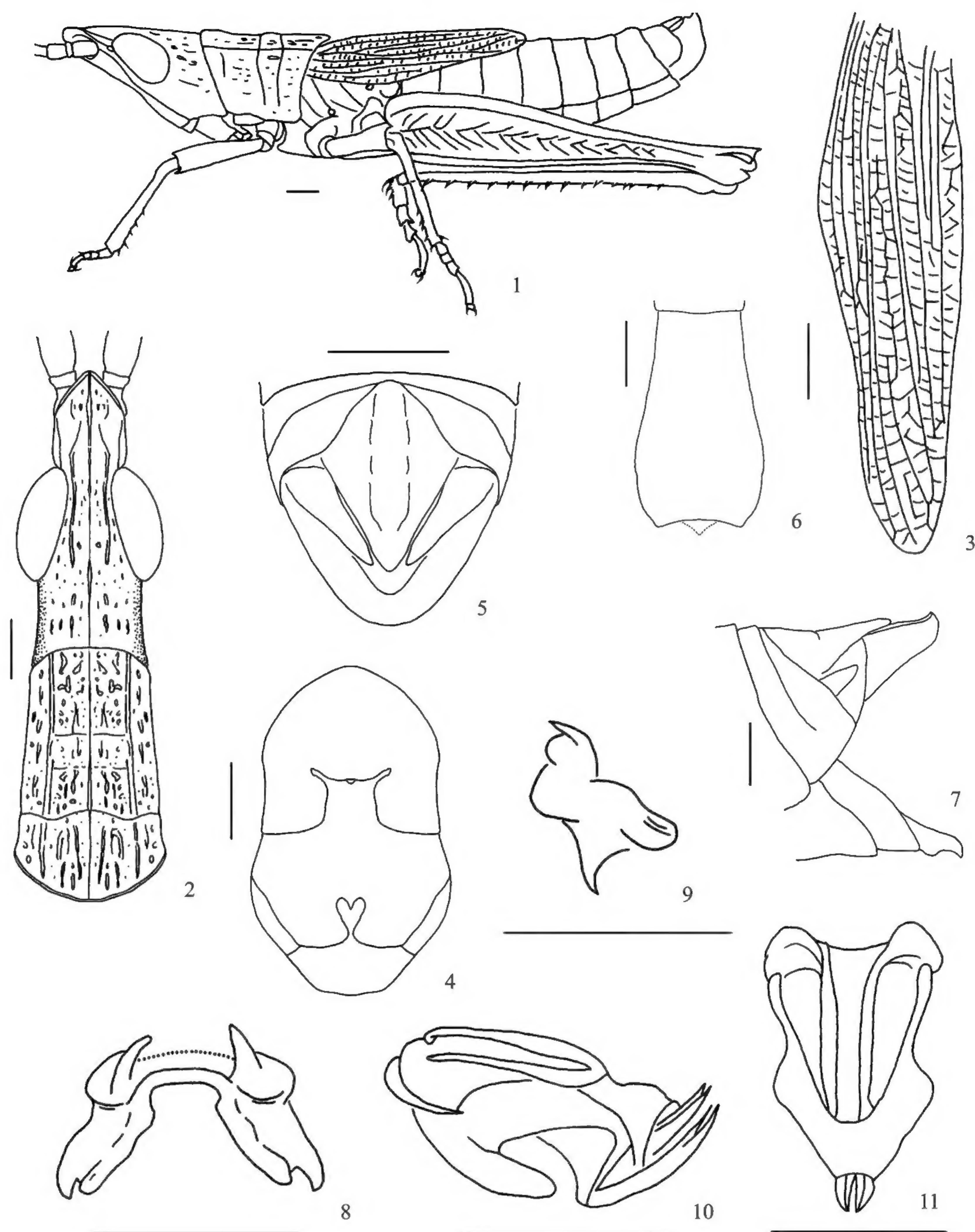
**Description.** Body small to median. Head faintly longer than pronotum (4.40:4.05 mm, in male) or almost as long as pronotum (5.5:5.4 mm, in female), with short carinae and rugulae on surface (Figs 1–2). Fastigium very projecting forwards, apex obtusely angular, lateral margin somewhat raised, length in front of eyes 1.19 (male) or 0.90 (female) times as long as width, 2.17 (male) or 1.33 (female) times as long as interocular distance. Vertex with a clear median longitudinal carina (Fig. 2). Frons strongly oblique in profile. Frontal ridge narrow with longitudinal sulcus throughout, lateral margins somewhat parallel above median ocellus and gradually

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Figs 1 – 11. *Sinophlaeoba zhengi* sp. nov. 1. Male body, lateral view. 2. Male head and pronotum, dorsal view. 3. Male left tegmen. 4. Male mesosternum and metasternum. 5. Male terminalia, dorsal view. 6. Female subgenital plate, ventral view. 7. Female abdominal apex, lateral view. 8 – 9. Epiphallus, dorsal and lateral views. 10 – 11. Phallic complex, lateral and dorsal views. Scale bars = 1 mm.

broadening below it. Antennae ensiform, 19 segments, backward reaching  $1/5$  of postfemur, 3<sup>rd</sup> – 9<sup>th</sup> segments prismatoidal, others laterally compressed in male; broken and lost in female. All ocelli small. Eyes long oval, longitudinal diameter 1.72 (male) or 1.67 (female) times as long as horizontal diameter, and 1.33 (male) or 1.07 (female) times longer than subocular furrow. Pronotum with anterior margin nearly straight, posterior margin broadly rounded;

median carina distinct, only intersected by posterior sulcus; lateral carinae parallel; disc with irregular short carinae and rough punctations between lateral carinae; hind transverse sulca distinct only; prozona 1.86 times as long as metazona in both sexes (Fig. 12). Prosternum flat. Mesosternal lobes 1.05 (male) or 1.20 (female) times as wide as long; mesosternal interspace 1.13 (male) or 1.29 (female) times longer than minimal width; lateral lobes of metasternum faintly



( male ) or evidently ( female ) separate. Brachypterous, tegmina dorsad contiguous, faintly surpassing posterior margin of fourth abdominal tergite ( Figs 1, 3 ) or 1/3 of postfemur in male, reaching at middle of third abdominal tergite in female, faintly longer than hind wings in both sexes. Postfemur laterally compressed; upper carina weakly smooth; lower knee lobes roundly angular. Posttibia with 11 – 13 external and 12 – 13 internal spines on dorsal side, external apical spine absent. Posttarsi with arolia surpassing middle of claw. Tympana opening oval.

Male genitalia ( Figs 5, 8 – 11 ). Supra-anal plate lozenged with median area raised and lateral areas downward reclinate; median longitudinal furrow deep and broad, apically subobsolete; apex subacute. Cerci conical, almost reaching apex of supra-anal plate. Subgenital plate short conical, apex obtuse. In dorsal view epiphallus with bridge nearly straight, distinctly more than rectangular between bridge and lateral plate; anchorae apically further surpassing bridge; lateral plate with posterior projection pointing backwards.

Female genitalia. Supra-anal plate almost lozenged with lateral areas sloping, median area with a broad and shallow median longitudinal furrow. Cerci short

and conical; apex obtuse. Ovipositor valves with margin smooth; apices hooked ( Fig. 7 ). Subgenital plate nearly narrow and long, posterior margin roundedly concave ( Fig. 6 ).

Coloration. Body generally yellowish brown, but back of head, disc of pronotum and tegmina brown, knee of postfemur dark brown, posttibia light blue-gray in both sexes.

Measurements ( mm ). Length of body: male 23.2, female 27.3; length of pronotum: male 4.1, female 5.4; length of tegmen: male 7.3, female 8.1; length of postfemur: male 12.4, female 13.0.

Holotype ♂, China, Nanuo, Yuanjing, Yunnan ( 23°23'N, 102°07'E; alt. 1 732 m ), 29 Nov. 2009, collected by LUO Zi-Wang. Paratype 1 ♀, China, Nanuo, Yuanjing, Yunnan, 14 July 2008, collected by WEI Wei.

Etymology. This species is named in honor of Prof. ZHENG Zhe-Min for his outstanding contribution to the systematic entomology.

Diagnosis. The new species is closely related to *S. laoyinshan* Mao, Ou *et* Ren, 2008 and *S. brachyptera* Mao, Ou *et* Ren, 2008. The main differences are listed in detail in Table 1.

Table 1. Comparison among *S. laoyinshan*, *S. zhengi* sp. nov. and *S. brachyptera*.

<i>S. laoyinshan</i>	<i>S. zhengi</i> sp. nov.	<i>S. brachyptera</i>
Head as long as pronotum in male	Head faintly longer than ( in male, Fig. 1 ) or almost as long as ( in female ) pronotum	Head longer than ( in male ) or almost as long as ( in female ) pronotum
Antennae shorter, reaching coxa of hind leg in male	Antennae longer, reaching 1/5 of postfemur in male	Antennae shorter, reaching coxa of hind leg in male
Tegmina shorter, reaching posterior margin of third abdominal tergite or 1/4 of postfemur in male	Tegmina shorter, faintly surpassing posterior margin of fourth abdominal tergite or 1/3 of postfemur in male, in female reaching at middle of third abdominal tergite ( Fig. 1 )	Tegmina longer, almost reaching posterior margin of fifth abdominal tergite or 1/2 of postfemur in male, in female reaching posterior margin of fourth abdominal tergite
In dorsal view epiphallus with bridge arch-shaped, rectangular between bridge and lateral plate, anchorae apically further surpassing bridge, lateral plate with posterior projection pointing posteriad	In dorsal view epiphallus with bridge nearly straight, obtusely angular between bridge and lateral plate, anchorae apically further surpassing bridge, lateral plate with posterior projection pointing outer-posteriad ( Fig. 8 )	In dorsal view epiphallus with bridge nearly straight, distinctly obtuse angle between bridge and lateral plate, anchorae apically faintly surpassing bridge, lateral plate with posterior projection pointing outwards

Distribution. The species is distributed in the Nanuo hill of Yuanjiang County, which belongs to south subtropical zone.

Biology. The food plants of this species have been unknown in field. In laboratory, it appears to feed on some grass, such as *Triticum aestivum* Linn., *Avena sativa* Linn. and *A. fatua* Linn.

4 *Sinophlaeoba brachyptera* Mao, Ou *et* Ren, 2008  
*Sinophlaeoba brachyptera* Mao, Ou *et* Ren, 2008: 37 – 39.

Materials examined. 32 ♂♂, 12 ♀♀, China, Yunnan, Xiping ( 24° 19' N, 101° 22' E; alt. 1 700 m ), 30 Apr. 2007, collected MAO Ben-Yong and ZHANG Jun.

Distribution. China, Yunnan ( Xiping ).

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REFERENCES

Eades, D. C., Otte, D., Cigliano, M. M. and Braun, H. 2010. Orthoptera Species File Online. Version 2.0/4.0. [ Retrieval date Aug. 2010 ]. < <http://Orthoptera.SpeciesFile.org> > .  
Mao, B-Y, Ou, X-H and Ren, G-D 2008. Description of two new species of *Sinophlaeoba* and the female of *S. bannaensis* ( Orthoptera, Acrididae ) from Yunnan, China. *Zootaxa*, 1 899: 34 – 42.  
Niu, Y and Zheng, Z-M 2005. A new genus and a new species of Phlaeobinae ( Orthoptera, Acrididae ) from Yunnan, China. *Acta Zootaxonomica Sinica*, 30 ( 4 ): 762 – 764. [ 动物分类学报 ]  
Yin, X-C and Yin, H 2007. A new genus and new species of Phlaeobinae from Yunnan, China ( Orthoptera, Acrididae ). *Zootaxa*, 1 547: 65 – 68.



云南华佛蝗属一新种（直翅目，剑角蝗科）\*

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**摘 要** 记述中国剑角蝗科 Acrididae 华佛蝗属 *Sinophlaeoba* Niu *et* Zheng, 2005 1 新种，即郑氏华佛蝗 *Sinophlaeoba zhengi* sp. nov.。编写了该属 4 种的分种检索表。模式标本保存于大理学院农学与生物科学学院。

**郑氏华佛蝗，新种 *Sinophlaeoba zhengi* sp. nov.**（图 1~11）  
新种近似于老阴山华佛蝗 *S. laoyinshan* Mao, Ou *et* Ren

和短翅华佛蝗 *S. brachyptera* Mao, Ou *et* Ren，与二者的区别见表 1。

正模 ♂，云南元江那诺，海拔 1 732 m，2009-11-29，罗自旺采。副模 1 ♀，云南元江那诺，2008-07-14，卫微采。

词源：新种种名以郑哲民教授的姓氏命名，以示对他在昆虫分类领域做出突出贡献的敬意。

表 1 郑氏华佛蝗与老阴山华佛蝗和短翅华佛蝗的比较

老阴山华佛蝗 <i>S. laoyinshan</i>	郑氏华佛蝗，新种 <i>S. zhengi</i> sp. nov.	短翅华佛蝗 <i>S. brachyptera</i>
雄性头长等于前胸背板长	雄性头长略长于前胸背板长，雌性头长近等于前胸背板长	雄性头长长于前胸背板长，雌性头长近等于前胸背板长
雄性触角较短，达到后足基节	雄性触角较长，达到后足股节的 1/5	雄性触角较短，达到后足基节
雄性前翅达到第 3 腹节后缘或后足股节的 1/4	雄性前翅略超过第 4 腹节后缘或后足股节的 1/3，雌性达到第 3 腹节中部	雄性前翅几达到第 5 腹节后缘或后足股节的 1/2，雌性达到第 4 腹节后缘
阳具基背片背观桥呈弧形，桥与侧板间夹角呈直角形，锚状突顶端较远地超过桥，侧板后突指向后方	阳具基背片背观桥近直，桥与侧板间夹角呈钝角形，锚状突顶端较远地超过桥，侧板后突指向外后方	阳具基背片背观桥近直，桥与侧板间夹角明显呈钝角形，锚状突顶端略超过桥，侧板后突指向外方

**关键词** 直翅目，剑角蝗科，华佛蝗属，新种，中国。  
**中图分类号** Q969.26

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